

### **REMARKS**

Claims 1-74 are pending in the application with claims 1-33 and 35-43 currently under examination. Claims 34 and 44-74 have been withdrawn from consideration as being directed to a non-elected invention. Claim 3 has been cancelled without prejudice. Accordingly, the amendments do not raise an issue of new matter and entry thereof is respectfully requested. Applicant has reviewed the rejections set forth in the pending Office Action, and respectfully traverse all grounds for the reasons that follow.

#### **Rejections Under 35 U.S.C. § 101**

Claims 1-33 and 35-43 stand rejected under 35 U.S.C. § 101 for being directed to non-statutory subject matter allegedly because they either lack a physical transformation outside the computer and lack a practical application. In particular, the Office alleges that the claims are “directed to methods of predicting a behavior of a biochemical system comprising a series of mathematical steps for data manipulation, equivalent to mental processes” and “[i]n the event that the claimed method steps are implemented by a computer, the method claims are not statutory due to a lack of physical transformation outside the computer and a practical application.” Office Action at page 3 (*see also* page 5, paragraph 2).

The Board of Appeals and Interferences of the U.S. Patent and Trademark Office has now overturned rejections attempting to require method claims to include machine or computer processing limitations such as the instant requirement for a physical transformation or an interaction with a computer. *In re Lundgren*, B.P.A.I. Case Nos. 2003-2088 (Sept. 28, 2005) (*Per Curium*). This decision by the U.S.P.T.O. itself establishes a new precedent invalidating Examiners’ rejections which allege nonstatutory subject matter because the claims lack a physical transformation outside a computer or do not require machine implementation. In light of *In re Lundgren*, withdrawal of this ground of rejection is respectfully requested.

#### **Rejections Under 35 U.S.C. § 112**

Claim 3 stands rejected under 35 U.S.C. § 112, second paragraph, as indefinite for use of the phrase “value sets further comprise at least two or more data elements.” Applicant has

canceled claim 3 above without prejudice. Accordingly, this ground of rejection is moot and withdrawal is respectfully requested.

### **Rejections Under 35 U.S.C. § 102**

Claims 1-33 and 35-43 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Rine et al. The Office maintains that Rine et al. describe analyzing stimulus-response patterns of a living thing using artificial intelligence systems and cites to various passages which are alleged to anticipate all elements of the claimed invention. The Office concludes that the distinction argued of record in previous Responses is addressed in various cited passages of the rejection. Applicant will address the relevant passages in turn below.

When lack of novelty is based on a printed publication that is asserted to describe the same invention, a finding of anticipation requires that the publication describe all of the elements of the claims. *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1349, 48 U.S.P.Q.2d 1225, (Fed. Cir. 1998) (quoting *Shearing v. Iolab Corp.*, 975 F.2d 1541, 1544-45, 24 U.S.P.Q.2d 1133, 1136 (Fed. Cir. 1992)). The Office must show that the single reference cited as anticipatory art describes all the elements of the claimed invention. Rine et al. fails to anticipate the claimed invention because Rine et al. does not describe two or more data integration maps having value sets containing two or more different types of data elements as is claimed.

The claims are directed to producing a comparison of two or more data integration maps and identifying correlative changes in value sets containing two or more different types of data elements. In contrast, Rine et al. appear to merely compare values obtained from microarray profiles without integration of different types of results into a value set as claimed. Rather, Rine et al. appear to compare the same type of data element obtained under different conditions. Therefore, Rine et al. fail to describe two or more different types of data elements integrated into a value set and, similarly, cannot describe an integration map having such two or more value sets containing different types of data elements.

The application teaches that a data integration map is a set of data elements describing the interactions, interrelations and interdependencies of network constituents when it describes:

[T]he term “data integration map” is intended to mean an indexed set of data elements corresponding to components that describes the interactions, interrelations, and interdependencies of the components included within the biochemical or constituent system. The description of the system interactions, interrelations and interdependencies can be arranged in a variety of formats . . . These formats as well as others known in the art are included within the meaning of the term so long as the represented data elements are indexed or cross-referenced to make known the various interactions, relationships and dependencies of the included system components.

Application at page 16, lines 13-29 (emphasis added).

The application also teaches that a value set means two or more types of data elements that characterize a component of biochemical system (page 18, lines 27-29, for example) and the claims now expressly recite that the two or more types of data elements constitute different types of data elements. Therefore, the methods of the invention compare two or more different types of data elements between two or more value sets for at least two networks that have been assimilated into an integration map which describes the interactions, relationships and dependencies of the network components.

The Office alleges that Rine et al. describe a data integration map, but fails to cite to a passage or describe where and how Rine et al. describe an integration map containing value sets with different types of data. For example, the Office states:

Rine et al. disclose constructing a stimulated physical matrix (data integration map which is a physical interaction map).

Office Action at page 7 (*citing* col. 2, lines 4-15).

However, there is nothing in the Office’s assertion that supports Rine et al. describe an integration map or value sets as claimed. In this regard, the Office asserts in the passage above that a physical matrix is an integration map. A physical matrix of things does not describe an integration of data elements and value sets as is described and claimed by the invention because a physical matrix corresponds to things whereas an integration map corresponds to data elements and value sets. Further, the Office analogizes a data integration map with a physical interaction

map and, although a physical interaction map as described and claimed can be a subset of integration maps if it contains interaction data as one of the types of data elements within the integration (see, for example, page 17, lines 21-25), neither type of map corresponds to a physical matrix of things as described above.

Further, there does not appear to be any description at column 2, lines 4-15 of indexed set of data elements within value sets that describe the interactions, interrelations, and interdependencies of the components included within the biochemical nor is there a description of a value set containing two or more types of data elements that characterize a component of a biochemical system. Rather, column 2, lines 4-15, are directed to physical matrix of living things, or responders, that are then assayed. The results are related back to the responders and not to each other. In particular, column 2, lines 4-15, states:

Generating an output signal matrix database according to the invention involves: (I) constructing a stimulated physical matrix; (ii) detecting a physical signal at each unit of the physical matrix; (iii) transducing each physical signal to generate a corresponding electrical output signal; (iv) storing each output signal in an output signal matrix data structure associating each output signal with the X and Y coordinates of the corresponding physical matrix unit and the stimulus; and (v) repeating steps (I)-(iv) to iteratively store output signal matrix data structures for a plurality of stimuli to form an output signal matrix database indexing output signal matrix data structures by stimuli.

*Id.* (emphasis added).

As indicated by the underlined passage, the signal obtained from the responders is described to be correlated back to its X-Y location in the physical matrix. The above passage is silent as to any association of data elements with each other to form a value set or as to any integration into a map that describes the interactions, interrelations and interdependencies of the components of a biochemical system. Therefore, neither the Office nor the cited passage in Rine et al. describe an integration map containing values sets with different types of data as is claimed by the invention.

The Office further alleges that Rine et al. describe performing comparisons to generate correlates and qualitative and/or quantitative deduction analysis “which represents producing a comparison of two or more data integration maps and identifying correlative changes in at least

two value sets.” Office Action at page 8. Column 5, lines 56-63, and Figure 5 are cited as support.

The passages cited in Rine et al. reads:

The system interface 514 permits the input of library data structures for the database and query data structures or query stimuli. The inference engine 512 is a computer program that processes data structures for comparison against the resident knowledge base database according to the knowledge base rules to generate correlates and qualitative and/or quantitative deduction analyses. Such analyses are conveniently output as a prioritized set of matches, each match including an identifier and a relatedness score as in Basic Local Alignment String Transformer (BLAST) search reports, Altschul et al. (1990) Basic Local Alignment Search Tool, *J Mol Biol* 215, 403-410.

*Id.* (emphasis added).

Applicant respectfully submits that this passage fails to describe a comparison “of two or more data integration maps and identifying correlative changes in at least two value sets” because it describes a search to identify matches between a query and a database. As described in the underlined passages, Rine et al. describe the input of data structures and a comparison to output a prioritized set of matches. There appears to be no description of any association of data elements with each other to form a value set or of any integration into a map that describes the interactions, interrelations and interdependencies of the components of a biochemical system as is claimed by the invention.

The Office further alleges that Rine et al. describe at least three different types of data elements within value sets and at least five components. Office Action at p. 8. In this regard, the Office alleges that Rine et al. describe:

[U]sing an array containing a different responder of a living thing in each unit which may comprise an organism’s entire repertoire of responders including genes, gene regulatory elements, gene transcripts (mRNA) or translates (protein), or predetermined functional class or subset of the organism’s entire repertoire as well as a sufficient ensemble of responders to deduce the action of a stimulus (col. 2, lines 30-44).

*Id.*

Applicant contends that the above cited passage fails to describe the inclusion of two or more different types of data into a value set that represent the various interactions, relationships and dependencies of the system components. In this respect, and while the above passage states that a responder can include an organism's repertoire of responders, it fails to describe that data elements measured from two or more different types of responders are associated into a value set and integrated to produce an integration map as claimed. Instead, the cited passage appears to describe no more than the use of an array to measure outputs and that such outputs in each unit of the array can include a certain type of responder. Absent a description that any data elements measured from the physical matrix of responders are associated into values and integrated into a integration map as is claimed, this cited passage in Rine et al. fails to describe the invention as claimed.

In light of the above, Applicant contends that the Rine et al. fails to anticipate the invention as claimed and withdrawal of this ground of rejection is respectfully requested.

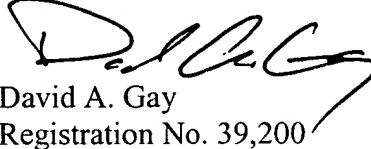
**CONCLUSION**

In light of the Remarks herein, Applicant submits that the claims are in condition for allowance and respectfully request a notice to this effect. Should the Examiner have any questions, she is invited to call the undersigned attorney.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 502624 and please credit any excess fees to such deposit account.

Respectfully submitted,

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